

IN THE CLAIMS

- Claim 1. **(Currently amended)** A micromixer for mixing at least two fluids which react to form precipitates or suspensions, having a first channel for supplying a first sub-flow (6) and having a second channel for supplying a second sub-flow (7), which open in flat entry gaps (19, 20) into a mixing and reaction zone (10) and leave the mixing and reaction zone (10) via an outlet channel (11), **characterized in that wherein** a reflux barrier is arranged between the mixing and reaction zone (10) and at least one channel for supplying a sub-flow (6, 7, 37) **and wherein the entry gaps (19, 20) are bounded by microstructured components (16, 9), which contribute to dividing the sub-flows (6, 7, 37) into individual sub-streams.**
- Claim 2. (Previously presented) The micromixer as claimed in claim 1, wherein the reflux barrier is designed as a non-return valve.
- Claim 3. (Previously presented) The micromixer as claimed in claim 2, wherein the prestress of the non-return valve is provided by mechanical means (13, 14, 15).
- Claim 4. (Previously presented) The micromixer as claimed in claim 2, wherein the non-return valve is electrically, pneumatically, hydraulically or electromagnetically drivable.
- Claim 5. **(Currently Amended)** The micromixer as claimed in claim 1, wherein the **non-return valve reflux barrier** is designed as a membrane arrangement.
- Claim 6. (Previously presented) The micromixer as claimed in claim 1, wherein deposits are cleaned from the reflux barrier in the course of operation by cleaning pins, which insert into the opening uncovered by the reflux barrier during each opening and closing process and are essentially designed with a needle shape.
- Claim 7. (Previously presented) The micromixer as claimed in claim 1, wherein entry gaps (19, 20) for the sub-flows (6, 7, 37) are designed as narrow annular gaps, so that the sub-flows (6, 7, 37) meet each other as thin film layers.

Claim 8. **(Cancelled)**

Claim 9. (Previously presented) The micromixer as claimed in claim 1, wherein the outlet channel (11) has a smooth and widening geometry.

Claim 10. (Previously presented) The micromixer as claimed in claim 1, wherein a feed for an envelope stream, which encloses the mixed sub-flows (6, 7, 37) when they emerge, is provided in the outlet channel (11).

Claim 11. (Previously presented) The micromixer as claimed in claim 1, wherein the response pressure and/or the opening behavior of the reflux barrier, the width of at least one of the inlet gaps and/or the characteristic dimensions of the mixing and reaction zone are externally adjustable by mechanical, hydraulic, pneumatic, electrical or electromagnetic means and/or are automatically varied as control variables of an outer or inner control loop.

Claim 12. **(Currently Amended)** ~~The micromixer as claimed in~~ An apparatus comprising two or more micromixers of claim 1, ~~wherein two or more valve mixer units according to the invention are~~ arranged in a common housing with common supplies of the sub-flows and a common outlet channel, so that they can be operated in parallel.

Claim 13. (Withdrawn/**Currently amended**) ~~The use of the micromixer as claimed in claim 1~~ **A method** for carrying out precipitation and/or crystallization reactions, the preparation of nanoparticles, carbon nanotubes, fullerenes or particles/nanoparticles having a plurality of layers of different substances arranged in a concentric sequence, which comprises carrying out same in the micromixer of claim 1.